

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

SDT
R23
C2



United States
Department of
Agriculture

Forest Service

Tongass
National
Forest

R10-MB-229c

July 1993



Central Prince of Wales Final Environmental Impact Statement

Ketchikan Pulp Company
Long-Term Timber Sale Contract

SUMMARY



Central Prince of Wales
Final Environmental Impact Statement

Ketchikan Pulp Company Long-Term Timber Sale Contract

Ketchikan Area—Tongass National Forest
USDA Forest Service
Alaska Region

Lead Agency	USDA Forest Service Tongass National Forest Ketchikan Area
Responsible Official	Forest Supervisor Ketchikan Area Tongass National Forest Federal Building Ketchikan, AK 99901
For Further Information Contact	David Arrasmith, IDT Planning Staff Officer Ketchikan Area Tongass National Forest Federal Building Ketchikan, AK 99901 (907) 225-3101

Abstract

The USDA Forest Service proposes to harvest approximately 290 million board feet (MMBF) of timber from an estimated 10,000 acres of the Central Prince of Wales (CPOW) Project Area, Thorne Bay Ranger District, Ketchikan Administrative Area, Tongass National Forest. Timber volume would be offered to the Ketchikan Pulp Company (KPC) under the KPC Long-Term Sale Contract (A10fs-1042), in separate offerings ranging in size from 10 to 50 MMBF. The CPOW EIS describes seven alternatives that provide different combinations of resource outputs and spatial locations of harvest units. The alternatives include: 1—no action, proposing no new harvest from the CPOW Project Area for the Long-Term Contract; 1A—no action/no harvest, proposing no new harvest and cancellation of ongoing timber harvest in the Project Area; F2—configuring harvest units to reduce harvest of high value wildlife habitat and maintain the integrity of both Habitat Conservation Areas within the Project Area proposed by the Interagency Viable Population Committee; F3—configuring harvest units to focus on providing economical timber harvest for this timber entry; F4—configuring harvest units to provide economically viable timber harvest and maintain the integrity of the larger of the two Habitat Conservation Areas; F5 (preferred)—emphasizing ecosystem management principles while maintaining the integrity of the larger of the two HCA's; F6—configuring harvest units to respond to site-specific public concern by deferring harvest in specific units.

Table of Contents

Overview of the Project	S-1
Project Area	S-2
Purpose of and Need for Action	S-2
Proposed Action	S-5
Decision to be Made	S-5
Issues	S-5
Availability of Documents	S-6
Development of Alternatives	S-7
Alternatives Considered but Eliminated	S-7
Alternatives Considered for Detailed Study	S-8
Preferred Alternative	S-13
Summary Comparison	S-13
Comparison of Alternatives	S-15
Comparison of Alternatives by Significant Issue	S-15
Comparison of Alternatives by Environmental Consequences	S-32
Mitigation Measures	S-34
Monitoring	S-39
Implementation Monitoring	S-39
Effectiveness Monitoring	S-39
Validation Monitoring	S-39

List of Tables

Table Sum-1	Summary Comparison of Alternatives	S-14
Table Sum-2	Potential Reduction in Habitat Capability for MIS in 1996	S-19
Table Sum-3	Effect of Timber Harvest on Forest Fragmentation	S-21
Table Sum-4	Road Construction and Reconstruction Crossing Streams	S-24
Table Sum-5	Acres of High MMI Soils Harvested	S-24
Table Sum-6	Proposed Viewshed VQO's, by Distance Zone	S-25
Table Sum-7	Estimated Returns to State of Alaska from Sale of CPOW Timber	S-30
Table Sum-8	Harvest within Goshawk Habitat Management Areas	S-32

List of Figures

Figure Sum-1	Project Area Vicinity Map	S-3
Figure Sum-2	Current and Projected Timber Supply for KPC Contract	S-4
Figure Sum-3	Timber Harvest by Logging System	S-15
Figure Sum-4	Cable Yarded Volume Per Mile of New Road Construction	S-16
Figure Sum-5	Estimated Mid-Market Stumpage Value	S-16
Figure Sum-6	Subsistence Use of Harvest Units, Based on TRUCS	S-17
Figure Sum-7	Harvest in High-Use Subsistence Areas Identified by Public Response	S-18
Figure Sum-8	Estimated Deer Habitat Capability in 1996	S-18
Figure Sum-9	1989-94 EIS Old-Growth Harvested Compared to Total 89-94 Old-Growth	S-20
Figure Sum-10	Timber Harvest in HCA's	S-20
Figure Sum-11	Timber Harvest in Honker Divide Compared to Other Areas	S-22
Figure Sum-12	Timber Harvest in Honker Divide HCA	S-23
Figure Sum-13	Acres of Viewshed Disturbance Within Key Viewsheds	S-26
Figure Sum-14	Changes in ROS Class	S-27
Figure Sum-15	Harvest within Recreation Places	S-27
Figure Sum-16	Timber Harvest within Roadless Areas	S-28
Figure Sum-17	Average Decadal Harvest Levels for CPOW Project Area	S-29
Figure Sum-18	Acres of Harvest on Karst Features, by Alternative	S-31
Figure Sum-19	Acres of Timber Harvest and Road Construction by MMI	S-32
Figure Sum-20	Wetlands with Timber Harvest and Road Construction Activities	S-33

Summary

Key Terms

Log Transfer Facility (LTF) - a facility used for transferring commercially harvested logs to and from a vessel or log raft, or the formation of a log raft.

Long-Term Contract - Long-Term Timber Sale Contract with Ketchikan Pulp Company; the most recent EIS for this contract is referred to here as "1989-94 LTS EIS."

Management Indicator Species (MIS) - species of vertebrates and invertebrates whose population changes are believed to best indicate the effects of land management activities

Mitigation - measures designed to counteract environmental impacts or to make impacts less severe

Monitoring - process of collecting information to evaluate whether or not objectives of a project and its mitigation plan are being realized

Riparian - transition zone between a stream or lake system and the adjacent land

Sawlog - that portion of a tree that is suitable in size and quality for the production of dimension lumber

Scoping - early and open activities used to determine the scope and significance of a proposed action

Subsistence - the customary and traditional uses by rural Alaskan residents of wild renewable resources for direct personal or family consumption and for customary trade

Utility log - those logs that do not meet sawlog grade but are suitable for production of firm useable pulp chips

Value Comparison Unit (VCU) - areas which generally encompass a drainage basin, containing one or more large stream systems; boundaries usually follow easily recognizable watershed divides.

Volume Classes - used to describe the average volume of timber per acre in thousands of board feet

Overview of the Project

The USDA Forest Service proposes to harvest approximately 290 million board feet (MMBF) of timber from an estimated 10,000 acres of the Central Prince of Wales (CPOW) Project Area of the Tongass National Forest, Ketchikan Administrative Area, Thorne Bay Ranger District. This Environmental Impact Statement (EIS) has been prepared in accordance with the National Environmental Policy Act (NEPA) to disclose the environmental and social consequences of this proposed action and alternative courses of action.

Summary

The project formally began on August 30, 1991, with the issuance of a Notice of Intent to proceed with the environmental analysis of the project. Public scoping was conducted during September and October 1991, via mailings and local news media, to solicit issues to be addressed in the Draft EIS. Scoping feedback mailings and meetings were held in April 1992 to disclose the tentative issues and alternatives and to answer questions from the public.

The Draft EIS was mailed to the Distribution List October 13, 1992 and availability was announced in the Federal Register on October 23, 1992. Public comments were accepted until February 1, 1993. Subsistence hearings were held in 8 local communities: Coffman Cove (December 3), Craig (November 18), Hydaburg (November 19), Ketchikan (November 23), Klawock (November 17), Saxman (November 24), Thorne Bay (December 1), and Whale Pass (December 2).

Approximately 375 individuals, agencies, and organizations submitted written comment on the Draft EIS. In addition, 34 verbal testimonies were received at the subsistence hearings. Written comments and subsistence testimonies were analyzed and incorporated into the Final EIS as appropriate.

Project Area

The 321,866-acre Project Area is located on Prince of Wales Island, approximately 50 air miles northwest of Ketchikan, Alaska. See Figure Sum-1 for a Project Area vicinity map. The Project Area encompasses all or portions of TLMP management areas K03, K07, K08, K09, and K10. These are further subdivided into 28 Value Comparison Units (VCU's), whose boundaries generally follow watershed divides.

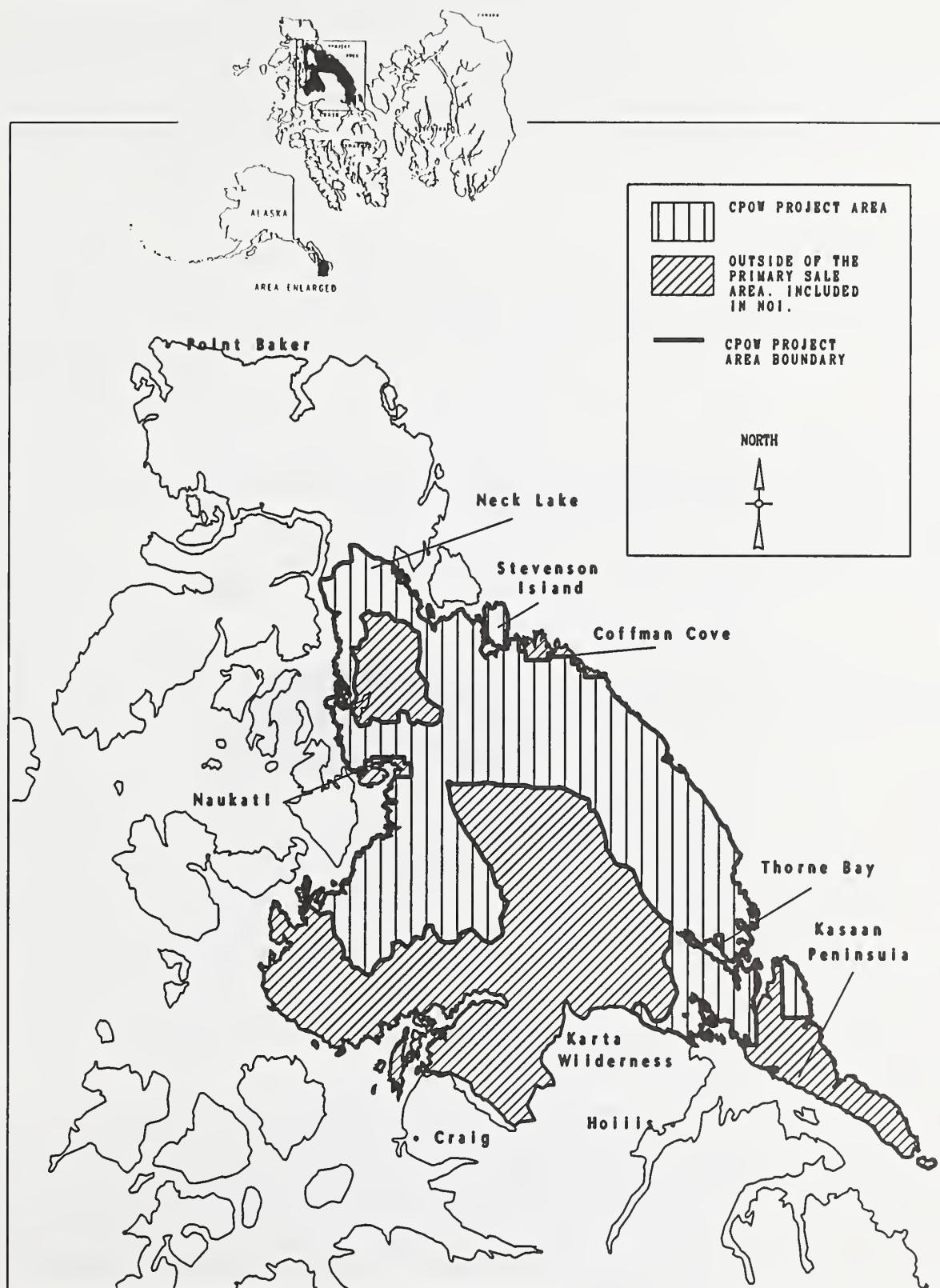
Purpose of and Need for Action

This project is intended in part to help satisfy the three-year current timber supply requirement of the Long-Term Contract with the Ketchikan Pulp Company (KPC). There also is a need to help satisfy the obligation set by Congress under the Tongass Timber Reform Act (TTRA) of 1990, directing the Forest Service to seek to provide a supply of timber which meets annual market demand to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources. For this project the volume has been determined to be approximately 290 MMBF, reflecting a management decision based on the most current schedule to provide a three-year timber supply of 615 MMBF for the KPC Long-Term Contract (Appendix A in the EIS). The purpose and need is further to move to implement the Tongass Land Management Plan (TLMP, 1979, as amended), thereby moving from the existing forest condition to the desired future condition, as specified in the TLMP Management Direction/Emphasis for the management areas within the Project Area.

Contract Obligations

The Long-Term Contract, originally signed in 1951 and modified most recently in 1991, calls for a total of 8.25 billion board feet of timber to be supplied to KPC. Under the terms of the modified contract, the Forest Service is required to "develop a tentative Offering schedule...[which] shall list sufficient timber volume and schedule commencement of the NEPA process...to provide [KPC] a Current Timber Supply sufficient for at least three years of operations...." Further, the Forest Service is required to "seek to specify sufficient Offerings to maintain a Current Timber Supply in all Offering areas that totals at least three years of operations...and which meets the production requirements of [KPC's] manufacturing facilities." The most recent three-year analysis of Current Timber Supply (15 February 1992) requires the Forest

Figure Sum-1
Project Area Vicinity Map



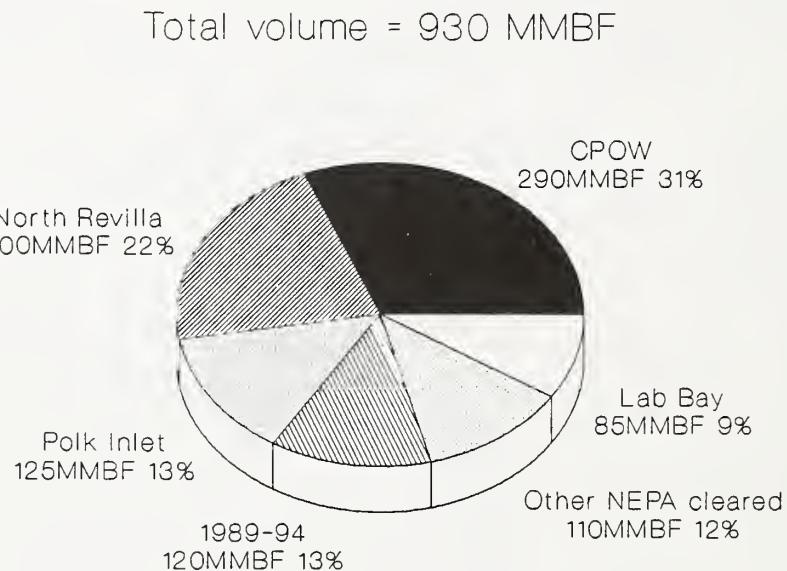
Summary

Service to seek to maintain an annual sawlog supply of 615 MMBF of harvestable timber that has been cleared through the NEPA process.

Four timber projects—North Revilla, CPOW, Polk Inlet, and Lab Bay—were initiated to contribute toward this timber supply. The goal of these projects was to provide timber which, when combined with the 120 MMBF remaining under the 1989-94 LTS EIS, would supply enough timber for the 1993 logging season (205 MMBF), plus the aforementioned 615 MMBF. The desired timber supply is therefore 820 MMBF, of which the four projects were to supply 700 MMBF. This 700 MMBF was divided among the four timber projects based on the size of the project areas, as well as on their relative abilities to produce timber in an expedient fashion.

Once these four projects were underway, delays were experienced in their completion. These delays were such that only limited volume could be made available from them for the 1993 logging season. This also had an effect of delaying the time when a three-year timber supply could be achieved. In an effort to provide enough volume for the 1993 logging season, and to stay on schedule for attaining a three-year timber supply, four independent sales were released to KPC. Figure Sum-2 illustrates the current and projected timber supply for the long-term contract with KPC.

**Figure Sum-2
Current and Projected Timber Supply for the KPC Long-Term Contract**



Existing and Desired Future Condition

The existing condition of the Project Area is approximately 95 percent forested, with about 24 percent in noncommercial (scrub) timber, 28 percent in second growth, and 43 percent in old-growth commercial forest. The area is heavily roaded. The Project Area provides habitat for numerous wildlife species including deer, black bear, martens, and bald eagles. Salmon and native trout spawn in the numerous streams. Recently, significant caves have been discovered and explored. The Project Area provides recreation, subsistence, and employment opportunities for many individuals and communities.

The desired future condition for the Project Area was established through the Forest planning process and is presented in the TLMP (1979a, as amended 1986). The management emphasis and direction was further refined as the Desired Future Condition in the TLMP Draft Revision (1991a). It consists of a mosaic of timber stands of varying sizes and ages, interspersed with areas of old growth and nonforest vegetation, furnishing a sustained yield of timber in balance with other resources and uses, including riparian areas, water quality, fish habitat, sensitive visual resources, recreation opportunities, and old-growth stands and their associated wildlife.

Proposed Action

The Tongass National Forest, Ketchikan Area, proposes to harvest approximately 290 MMBF of timber from an estimated 10,000 acres on Prince of Wales Island. This will be accomplished through approximately nine offerings beginning in 1993. Approximately 100 miles of new road will be built to access and remove the timber. Five existing Log Transfer Facilities (LTF's) would be used; no new LTF's are proposed.

Decision to be Made

The Ketchikan Area Forest Supervisor will decide whether, when, and how to make timber available from the CPOW Project Area to meet contractual commitments and implement the Forest Plan. The Forest Supervisor can decide to: (1) select one of the alternatives, including the no-action alternative, (2) modify an alternative as long as the environmental consequences of the modified action have been analyzed within the Final EIS, or (3) reject all alternatives. If an alternative is selected, it will be documented in the Record of Decision (ROD).

Issues

The significant issues, concerns, and opportunities were identified through the public and internal scoping process, public comment received on the Draft EIS, and subsistence testimonies. These are as follows:

1. Cost effectiveness of timber harvest operations.
2. Impact of timber harvest operations on subsistence use.
3. Impact of timber harvest operations on wildlife habitat.
4. Impact of timber harvest operations within Honker Divide.
5. Impact of timber harvest operations on fish habitat and water quality.
6. Impact of timber harvest operations on visual quality and recreation.
7. Long-term social and economic stability of local communities.
8. Impact of timber harvest on karst ecosystem and cave resources.

The following issues raised by the public were considered but eliminated from detailed study because their resolution is beyond the scope of this document:

9. TLMP Land-Use Designations should be changed to eliminate or reduce the level of harvest and/or maximize specific resources.
10. CPOW should be delayed until the TLMP Revision is completed.
11. The Allowable Sale Quantity (ASQ) should be increased with this proposal.
12. Below-cost timber Sales should be eliminated.
13. Regional timber supply and demand should be refigured for the CPOW Project Area.

Summary

Availability of Documents

The Planning Record documenting the process of producing this EIS is available for review during regular business hours at the Forest Supervisor's office, Ketchikan, Alaska. Copies of the complete EIS including appendices may be viewed at the Supervisor's Office or at public libraries and schools in the region, and are available upon request.



Impact of timber harvest operations on visual quality and recreation is one of the significant issues analyzed in the CPOW EIS.

Development of Alternatives

Changes in Alternatives Between DEIS and FEIS

There is considerable refinement in site-specific information available for analysis in the Final EIS (FEIS), compared to what was available at the time the Draft EIS was produced. Refined information has been incorporated into the FEIS to make the proposed harvest units more site specific, as well as to make the units selected for each alternative more closely align with the alternative theme. The following are the major sources of this refined information:

1. Forest Service field recon;
2. Public response to the Draft EIS (approximately 375 responses);
3. Subsistence hearings in 8 local communities;
4. Updated GIS information;
5. Classification of approximately 975 miles of previously unclassified streams

Alternatives Considered but Eliminated

For this Final EIS, several alternatives were considered but dropped from further study because they did not fully meet or greatly exceeded the stated purpose and need for the project. These are as follows:

Alternative A

This was a maximum timber alternative which proposed to harvest 303 individual harvest units totaling 353 MMBF of sawlog plus utility volume from 12,890 acres. It was dropped from consideration because it exceeded the stated purpose and need for the project by 63 MMBF.

Alternative B

Numerous public comments requested the Forest Service reduce the level of timber outputs from the CPOW Project Area during this planning period. Many of the commenters questioned if harvest could be sustained within the Project Area throughout the rotation. The Forest Service's position is that sustainability of resource outputs is to be maintained at the Forest level and not at the project level. But in response to public input, the IDT used the TLMP Draft Revision to assess 'sustained' levels of harvest within the area. This analysis indicates that harvest levels can be sustained both on the Ketchikan Area as a whole, and within the northern part of Prince of Wales Island.

Alternative B proposed to harvest 54 individual harvest units, totaling 70 MMBF of sawlog plus utility volume from 2,454 acres. It proposed 21 MMBF scheduled for helicopter yarding. Alternative B was dropped from consideration because it failed to meet the stated purpose and need by 220 MMBF.

Summary

Alternatives C, D, E

These alternatives were presented to the public and selected agencies in April 1992 as Alternatives 2, 3, and 4, respectively. They all proposed to harvest less than the stated purpose and need, with proposed harvest levels of 220, 205, and 189 MMBF (based upon refined site-specific information), respectively. They were eliminated from detailed study because they failed to meet the stated purpose and need by 70, 55, and 101 MMBF respectively.

Alternative F

This alternative was originally presented in the Draft EIS as Alternative 3. For the Final EIS, it was modified to incorporate refined site-specific information. It also proposed deferral of harvest in specific areas identified by public comment and subsistence testimonies as important subsistence use areas. As modified, this alternative proposed to harvest 146 individual units totaling 177 MMBF from 6,473 acres. This alternative was eliminated from detailed study because it failed to meet the purpose and need by 113 MMBF.

Alternative G

This alternative used Alternative 4 from the Draft EIS as a baseline and eliminated all units for which Ketchikan Pulp Co. (KPC) expressed concern with harvest due to timber economics. As modified, this alternative proposed to harvest 193 individual units totaling 222 MMBF from 7,897 acres. This alternative was eliminated from detailed study because it failed to meet the purpose and need by 68 MMBF.

Alternative H

This alternative used Alternative A from the Final EIS as a baseline and eliminated all units for which the Alaska Department of Fish and Game expressed concern with harvest because of forest fragmentation and loss of wildlife habitat. As modified, this alternative proposed to harvest 232 individual units totaling 278 MMBF from 9,926 acres. Alternative H was dropped from consideration at the request of the State of Alaska since they did not intend their comments to be considered as a full alternative.

Alternatives Considered for Detailed Study

Seven alternatives for making timber available to KPC from the CPOW Project Area were considered in detail. Detailed maps of proposed alternatives are included in the supplementary map packet.

Following the Items Common to All Alternatives, the alternatives are described here in the following manner: (1) the emphasis or intent of the alternative, and (2) guidelines used in selecting units and roads consistent with the emphasis. Resource outputs and activities are summarized in Table Sum-1. Alternatives are compared by issue and environmental consequences later in this summary.

Items Common to All Alternatives

- Each alternative was developed in accordance with the standards and guidelines of the TLMP Draft Revision, Alternative P. Examples include: All units proposed for harvest by any of the action alternatives meet the TLMP Draft Revision standards and guidelines for riparian management of all streams within the GIS database.

Summary

No timber will be harvested within the 500-foot shoreline buffer or the 1,000-foot estuarine buffer. Each alternative meets the TLMP Draft Revision objective to contribute to the maintenance of viable populations of wildlife species.

- All units meet visual quality objectives (VQO's) proposed for this project.
- Individual harvest units which were designed to be greater than 100 acres were mitigated to be in compliance with National Forest Management Act (NFMA) and the Alaska Regional Guide.
- All alternatives defer any timber harvest within those portions of the Thorne River system that have been identified as eligible for consideration under the Wild and Scenic Rivers Act.
- No new log transfer facilities (LTF's) are required.
- Units that were identified as being highly unstable or highly susceptible to landslides were not included for harvest under any alternatives.
- All units were designed to be economically feasible.
- No alternative proposes timber harvest from Stevenson Island because of economic, visual, and cultural resource concerns.
- All alternatives comply with Sec.103(e) of the Tongass Timber Reform Act (TTRA) with regard to 100-foot buffers around Class I and II streams.
- All alternatives are projected to result in proportionality consistent with the Forest Service Handbook (FSH) direction for proportionality in management areas (MA) K08, K09, and K10. In these management areas, the proportion of volume class 6 and 7 is improved over what existed prior to TTRA. In addition, alternatives F5 and F6 are projected to improve the proportionality of volume class 6 and 7 for MA K07. Alternatives 1, 1a, F2, F3, and F4 are projected to result in a temporary proportionality departure at the time the proposed activity is completed for MA K07. However, the indicated proportionality departure is within the tolerance specified within the FSH. All alternatives show a temporary departure in proportionality in MA K03 that is beyond the tolerance specified in the FSH. This temporary departure will be remedied in the Lab Bay project, which contains the bulk of MA K03.
- No alternative proposes timber harvest on any lands which are currently selected by, but as yet unconveyed to, Native corporations or the State of Alaska.
- Ecosystem management opportunities are being developed and are incorporated into the alternatives where appropriate. Some of the activities that are responsive include: uneven-aged management within certain riparian areas; deferral of harvest within significant karst features; snag patches; wildlife islands within clearcuts; maintenance of large, unfragmented blocks of old-growth forest; partial cuts for maintenance of visual quality; shelterwood harvest to maintain cedar component; seed tree harvests to improve regeneration.

Alternative 1 (No Action)

Emphasis. The emphasis of this alternative is to propose no new timber harvest from the CPOW Project Area for the Long-Term Contract at this time. It does not preclude timber harvest from other areas at this time, or from the CPOW Project Area at some time in the future. It does not preclude harvest analyzed under previous NEPA documents but not yet felled as of the date of the CPOW ROD. NEPA requires a “No Action” alternative be analyzed in every EIS to serve as a benchmark by which effects of the other action alternatives are to be measured; this alternative provides that benchmark. The Existing Condition map, in the separate map packet, shows the distribution of vegetation associated with no new timber harvest.

Guidelines. There were no units selected for this alternative.

Alternative 1a (No Action/No Harvest)

Emphasis. The emphasis of this alternative is to propose no timber harvest from the CPOW Project Area effective on the date of the CPOW ROD. This alternative assumes complete cessation of all timber harvest activities in the Project Area, including any areas analyzed under previous NEPA documents but not yet felled as of the date of the CPOW ROD. This affects harvest units totaling approximately 1,000 acres and 30 MMBF analyzed under the 1989-94 Long-Term Sale EIS (LTS EIS), and approximately 25 acres and 0.48 MMBF analyzed for independent timber sales. This alternative does not preclude timber harvest from other areas at this time, or from the CPOW Project Area at some time in the future. This alternative serves as a further benchmark by which to measure the effects of the other alternatives.

Guidelines. There were no units selected for this alternative.

Alternative F2

Emphasis. The emphasis of this alternative (shown as Alternative 2 in the Draft EIS) is to meet the stated purpose and need while configuring planned harvest units throughout the Project Area to reduce harvest of high value wildlife habitat and to maintain the integrity of the Habitat Conservation Areas (HCA's) identified by the Viable Population Committee. This includes the 90,000-acre Honker Divide HCA (34,000 acres of which lie within the Project Area) and the 23,000-acre Staney Creek HCA. This approach emphasizes a deferral of harvest within the most valuable wildlife habitats and seeks to minimize the effects of forest fragmentation. This alternative focuses on harvest of areas already roaded or close to existing roads, thereby minimizing timber entry into unroaded areas. The Alternative F2 map, in the separate map packet, shows the harvest units and associated roads proposed by this alternative in relation to physical and geographic features of the Project Area.

Guidelines. Guidelines used in selecting units and roads which would be consistent with the emphasis of Alternative F2 include the following:

Defer timber harvest within all known goshawk habitat management areas.

Minimize timber harvest within the HCA's identified by the Viable Population Committee, including the HCA within Honker Divide and the smaller HCA in the Staney Creek area. Much of this area is high value habitat for wildlife species thought to be associated with large blocks of old-growth forest.

Defer harvest within individual units which were identified during field recon as having high local use by wildlife.

Minimize forest fragmentation in other areas by concentrating timber harvest adjacent or in close proximity to existing roads.

Alternative F3

Emphasis. The emphasis of this alternative (shown as Alternative 4 in the Draft EIS) is to meet the stated purpose and need while configuring planned harvest units throughout the Project Area with an increased focus on providing economic viability for this timber entry. This alternative does not propose any helicopter timber harvest. This approach emphasizes positive net economic return to the U.S. Treasury for the proposed harvest units, by seeking to minimize logging and road costs. This alternative focuses on harvest of units where the timber volume per acre is relatively high (subject to TTRA proportionality constraints) and where the harvested volume approximates 2.0 MMBF per mile of new road construction. The Alternative F3 map, in the separate map packet, shows the harvest units and associated roads proposed by this alternative in relation to physical and geographic features of the Project Area.

Guidelines. Guidelines used in selecting units and roads which would be consistent with the emphasis of Alternative F3 include the following:

Defer timber harvest in units scheduled for helicopter yarding.

Confine timber harvest to units which average more than 20 MBF per acre.

Select groups of harvest units which are planned to exceed 2.0 MMBF of yarded volume per mile of new road construction.

Alternative F4

Emphasis. The emphasis of this alternative (shown as Alternative 5 in the Draft EIS) is to meet the defined purpose and need by configuring planned harvest units throughout the Project Area to provide for economically viable timber harvest and to maintain the integrity of the HCA within Honker Divide. This approach emphasizes a positive net economic return for the proposed harvest units, while seeking to minimize the effects of forest fragmentation. This alternative focuses on harvest of higher volume stands, within TTRA proportionality constraints, which can provide a favorable ratio of yarded volume to mile of new road construction, while deferring harvest within the largest of the HCA's within the Project Area. The Alternative F4 map, in the separate map packet, shows the harvest units and associated roads proposed by this alternative in spatial context to physical and geographic features of the Project Area.

Guidelines. Guidelines used in selecting units and roads which would be consistent with the emphasis of Alternative F4 include the following:

Minimize timber harvest within the Honker Divide HCA.

Defer timber harvest in areas within the nesting area and the post-fledging area of all known goshawk management areas.

Confine timber harvest to units which average more than 20 MBF per acre.

Summary

Select groups of harvest units which are planned to exceed 1.5 MMBF of yarded volume for every mile of new road construction.

Alternative F5 (Preferred Alternative)

Emphasis. The emphasis of this alternative is to meet the defined purpose and need while emphasizing ecosystem management principles. These principles include reduced use of clearcutting, establishment of an entire area (adjacent to the Sarkar Lakes Primitive Recreation Area) emphasizing uneven-aged management, ecosystem management principles, and reduction of forest fragmentation by minimizing harvest in large old-growth blocks. This approach emphasizes a positive net economic return for the proposed harvest units, although the Offering Area devoted to ecosystem management principles may show less return. The Alternative F5 map, in the separate map packet, shows the harvest units and associated roads proposed by this alternative in spatial context to physical and geographic features of the Project Area.

Guidelines. Guidelines used in selecting units and roads which would be consistent with the emphasis of Alternative F5 include the following:

Minimize timber harvest within large, unfragmented old-growth blocks.

Minimize timber harvest within the Honker Divide HCA.

Defer timber harvest in the Paul Young drainage adjacent to the Karta Wilderness. ADF&G identified this as one of the few remaining unroaded, unfragmented drainages on the north half of Prince of Wales.

Defer timber harvest on the west side of Neck Lake to protect significant karst resources, to contribute to achievement of proportionality, and to maintain wildlife migration corridor between the Lab Bay and CPOW project areas.

Reduce use of clearcut harvest.

Emphasize an uneven-aged management harvest area adjacent to Sarkar Lakes to maintain visual, wildlife, recreation, cultural, subsistence, and fisheries values while still providing for moderate timber production.

Defer timber harvest in areas within the nesting area and the post-fledgling area of all known goshawk management areas.

Confine timber harvest to units which average more than 20 MBF per acre.

Select groups of harvest units which are planned to exceed 1.5 MMBF of yarded volume for every mile of new road construction.

Alternative F6

Emphasis. The emphasis of this alternative is to meet the defined purpose and need by configuring planned harvest units throughout the Project Area to respond to site-specific public concern by deferring harvest in specific areas of concern identified during public response to the Draft EIS, including subsistence testimonies. This approach emphasizes reducing harvest in areas of importance to subsistence users, sport hunters, and recreation users, while seeking to minimize the effects of forest fragmentation and harvest of areas containing karst features. The Alternative F6 map,

Summary

in the separate map packet, shows the harvest units and associated roads proposed by this alternative in spatial context to physical and geographic features of the Project Area.

Guidelines. Guidelines used in selecting units and roads which would be consistent with the emphasis of Alternative F6 include the following:

The baseline used to identify proposed units for this alternative is Alternative A (maximum timber).

Defer timber harvest in all site specific units identified as concerns as a result of public comment, including subsistence testimony but excluding units with concerns expressed by KPC representatives and ADFG, because those comments were addressed in Alternatives G and H, respectively.

Defer timber harvest on the west side of Neck Lake to protect significant karst resources, to contribute to the achievement of proportionality in K03, and to maintain a wildlife migration corridor between the Lab Bay and CPOW project areas.

Preferred Alternative

Using an evaluative process that compares the benefits and adverse effects of each alternative against the issues, the USDA Forest Service has identified Alternative F5 as the preferred alternative for this EIS. A final determination will be made by the Ketchikan Area Forest Supervisor in the Record of Decision (ROD).

Summary Comparison

Table Sum-1 provides a summary of outputs and environmental consequences by which the alternatives may be compared.



Summary

Table Sum-1
Summary Comparison of Alternatives

Activity/Resource	Units	Alternatives						
		1	1A	F2	F3	F4	F5	F6
Units	Number	0	0	228	241	223	237	221
Est. volume (including ROW)	MMBF	0	0	268	264	261	267	263
Clearcut harvest	Acres	0	0	8,397	8,687	8,140	8,257	8,484
Non-clearcut harvest	Acres	0	0	976	832	1,040	1,579	861
Total harvest	Acres	0	0	9,373	9,519	9,180	9,836	9,345
Units > 100 but < 150 acres	Number	0	0	29	18	24	24	22
Units > 150 acres (or adjacency concern)	Number	0	0	5	5	4	8	15
Highlead harvest	MMBF	0	0	67	88	73	72	67
Small skyline harvest	MMBF	0	0	100	134	91	85	84
Slackline harvest	MMBF	0	0	36	38	36	38	34
Helicopter harvest	MMBF	0	0	60	0	57	69	74
Right-of-Way (ROW) harvest	Acres	0	0	4	4	3	3	4
Potential shovel yarding	Acres	0	0	371	617	229	374	262
Est. mid-market stumpage	\$/MBF	NA	NA	3.29	2.41	1.03	3.83	0.58
Est. current value stumpage		NA	NA	-10.38	-8.44	-13.13	-4.86	-6.46
Returns to state (based on mid-mark.)	\$M	0	0	4,957	5,991	4,644	4,574	4,418
Average annual jobs over 4 years	# jobs	0	0	583	574	570	583	572
Specified road constr.	Miles	0	0	110	135	104	100	102
Temporary road constr.	Miles	0	0	4	11	8	5	5
Road reconstruction	Miles	0	0	78	70	79	78	72
High-use subsistence (TRUCS)	Acres harvested	0	0	2,830	2,726	2,577	2,853	2,929
High-use subsistence (resp. to DEIS)	Acres harvested	0	0	1,655	3,428	1,901	1,519	0
Old growth hab. (1989-94 LTS EIS)	Acres harvested	0	0	1,654	2,718	1,892	1,639	1,813
Honker Divide (ridge-to-ridge)	Acres harvested	0	0	566	1,194	414	436	801
Honker Divide HCA (VPOP Committee)	Acres harvested	0	0	79	1,806	123	129	328
Staney Crk. HCA (VPOP Committee)	Acres harvested	0	0	47	318	422	831	870
1996 MIS - deer	Habitat cap.	10,245	10,280	9,934	9,952	9,942	9,918	9,945
1996 MIS - bear	Habitat cap.	517	517	515	515	515	515	515
1996 MIS - marten	Habitat cap.	499	503	479	476	479	478	480
1996 MIS - river otter	Habitat cap.	168	168	168	168	168	168	168
1996 MIS - hairy woodpecker	Habitat cap.	3,395	3,425	3,181	3,182	3,186	3,172	3,192
1996 MIS - brown creeper	Habitat cap.	5,594	5,673	5,272	5,284	5,279	5,270	5,319
1996 MIS - Van. Canada goose	Habitat cap.	667	670	640	637	640	637	639
1996 MIS - bald eagle	Habitat cap.	375	375	374	375	374	374	374
1996 MIS - gray wolf	Habitat cap.	25	25	24	24	24	24	24
Very high mass movement (MMI 4)	Acres harvested	0	0	0	0	0	0	0
High mass movement (MMI 3)	Acres harvested	0	0	3,548	3,081	3,352	3,879	3,864
Medium mass movement (MMI 2)	Acres harvested	0	0	1,608	1,695	1,726	1,679	1,311
Low mass movement (MMI 1)	Acres harvested	0	0	2,603	2,870	2,625	2,671	2,452
Wetlands harvested/roaded	Acres	0	0	4,436	3,698	4,475	3,706	3,886
Roads crossing Cl.I,II streams	Number	0	0	54	63	47	27	49
Change in ROS: SPNM to RM	Acres	0	0	19,000	15,800	16,000	19,600	18,700
Roadless areas harvested	Acres harvested	0	0	3,584	3,458	3,137	3,664	3,596
Rec. places with some harvest	Number	0	0	14	17	15	14	10
Known karst	Acres harvested	0	0	731	959	958	838	131
Possible karst	Acres harvested	0	0	1,587	1,259	1,583	1,918	1,861
Signif. karst features (KRG survey)	# harv. units	0	0	10	16	15	12	1

Comparison of Alternatives

The following sections provide a comparison of alternatives by: (1) significant issue and (2) environmental consequence. For a comparison of alternatives by resource output and activity, see Table Sum-1.

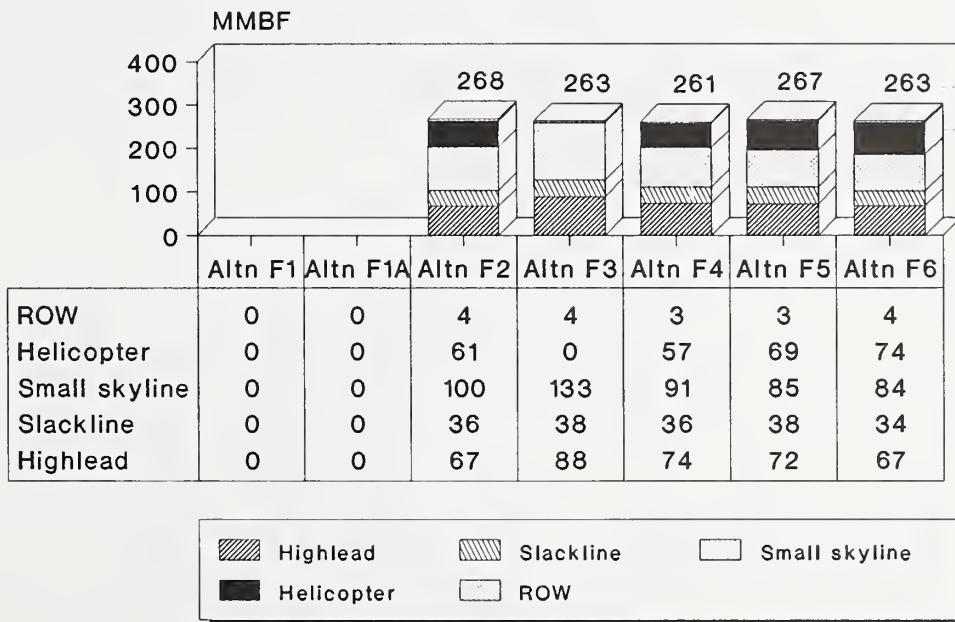
Comparison of Alternatives by Significant Issue

This section compares the alternatives in terms of the previously discussed significant issues. The baseline for comparing alternatives is Alternative 1, the no-action alternative.

Issue 1: Cost effectiveness of timber harvest operations

Estimated timber economics focuses on the residual value (stumpage) of the timber after all associated logging and transportation costs are subtracted. Generally speaking, the most expensive logging system is helicopter, followed by slackline. Helicopter yarding is necessary in areas where it is impractical to build road or where aerial logging is necessary to meet specific standards and guidelines. Alternative F6 has the most helicopter volume (74 MMBF), while Alternative F3 has none at all. Figure Sum-3 displays the logging systems proposed for each alternative.

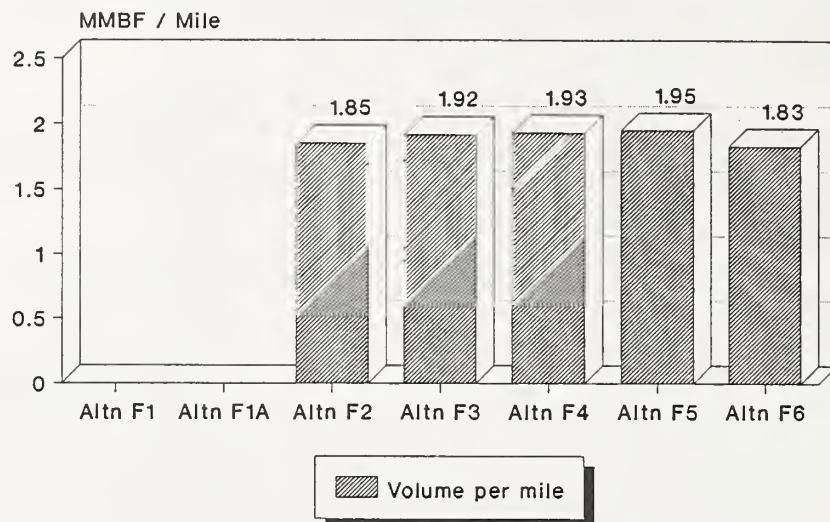
Figure Sum-3
Timber Harvest by Logging System



Summary

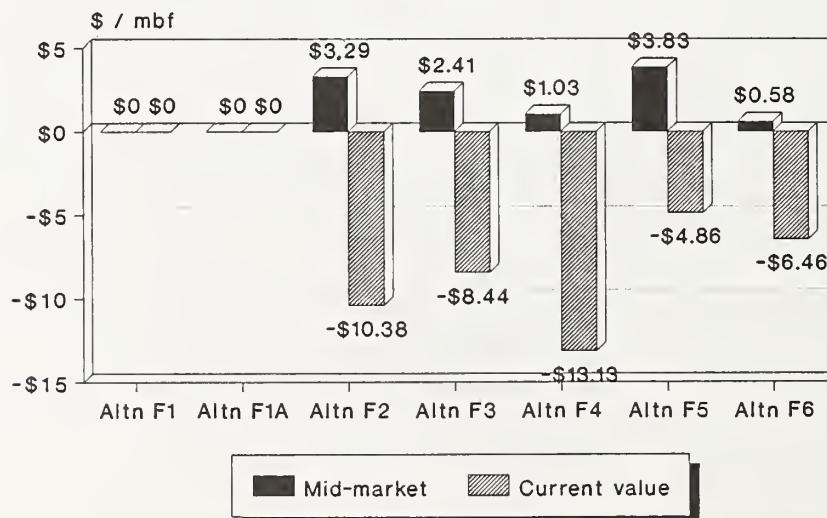
Another indicator of timber economics is the amount of non-helicopter volume which can be harvested per mile of new specified road construction (helicopter volume is excluded because it generally does not have associated new road construction). All alternatives have a very similar timber recovery in terms of MMBF per mile of new road construction. Figure Sum-4 shows timber recovery by alternative, as expressed by cable yarded volume per mile of new specified road construction.

Figure Sum-4
Cable Yarded Volume Per Mile of New Road Construction



All alternatives show a positive net stumpage based on mid-market costs and values, with Alternative F5 having the highest value (\$3.83 per MBF) and Alternative F6 having the lowest (\$0.58 per MBF). However, all alternatives show a negative net stumpage based on current market costs and values (April 1993), with Alternative F5 having the least negative value (-\$4.86 per MBF) and Alternative F4 having the most negative value (-\$13.13 per MBF). Figure Sum-5 shows timber stumpage by alternative on both a mid-market and current value basis. Actual values will be determined at the time of offering to KPC based on the timber sale appraisal process.

Figure Sum-5
Estimated Mid-Market Stumpage Value



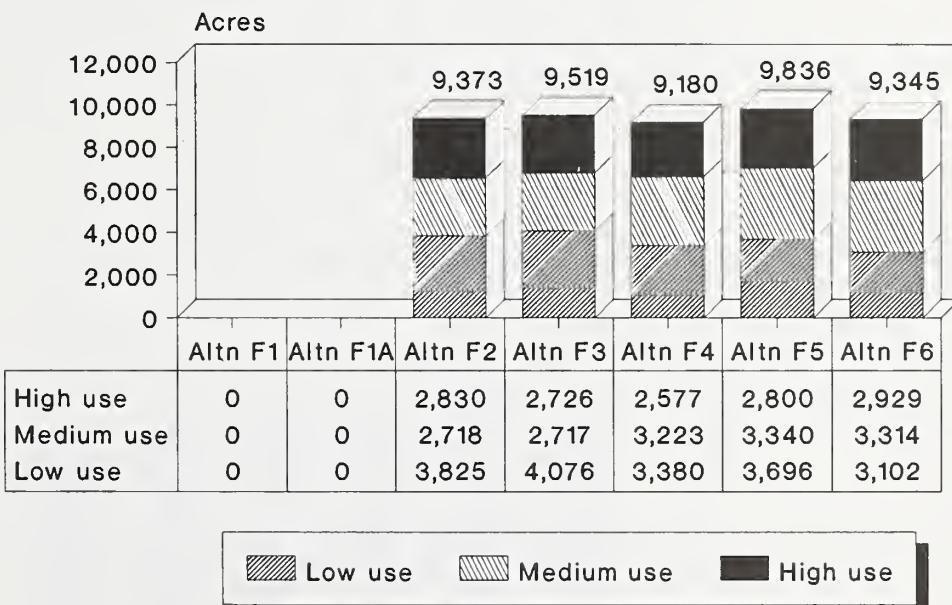
The timber economic analysis showed that Alternative F3 has the lowest logging cost, because it proposes no helicopter yarding. However, Alternative F3 also has the highest roading cost, because it requires more miles of road construction. The results of this analysis indicate that net harvest receipts are roughly equivalent for the helicopter/no road vs cable yard/road construction option. It is noted that Alternative F3 was designed to be the most economical alternative, but actually shows the most negative return to the U.S. Treasury after payments to the State of Alaska are included. This is because Alternative F3 is a non-helicopter alternative and proposes to build the most roads, and because 25 percent of purchaser road credits for specified roads are returned to the State of Alaska.

Issue 2. Impact of Timber Harvest Operations on Subsistence Use

Based on potential direct and cumulative effects of timber harvest and associated road construction, there may be a significant possibility of a significant restriction of subsistence use of deer within the Project Area under all alternatives, including the no-action alternatives. The proposed alternatives do not present a similar possibility of significantly restricting other subsistence uses.

The Tongass Resource Use Cooperative Survey (TRUCS) identified areas which are most heavily used by subsistence households. Based on the TRUCS, Alternative F4 harvests the fewest acres of high-use subsistence areas (2,577 acres), while Alternative F6 harvests the most (2,929). Figure Sum-6 compares the harvest acres for each alternative in terms of importance to current subsistence use patterns, as identified by TRUCS.

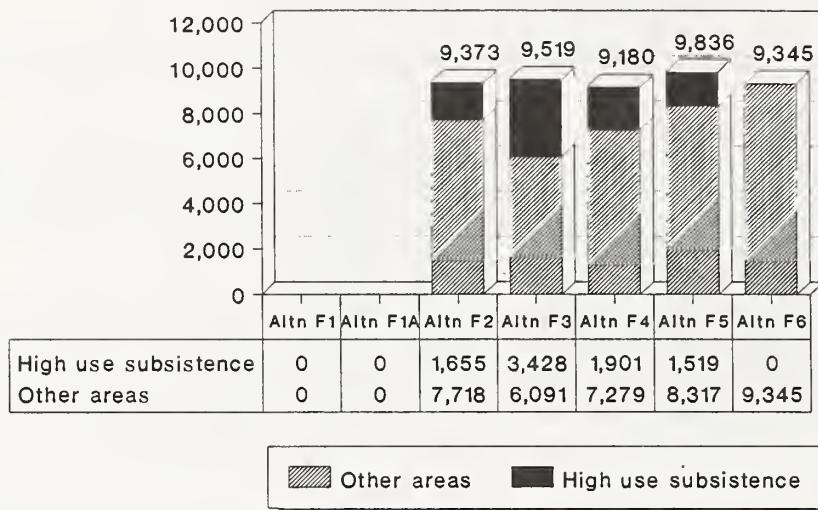
Figure Sum-6
Subsistence Use of Harvest Units, Based on TRUCS



Summary

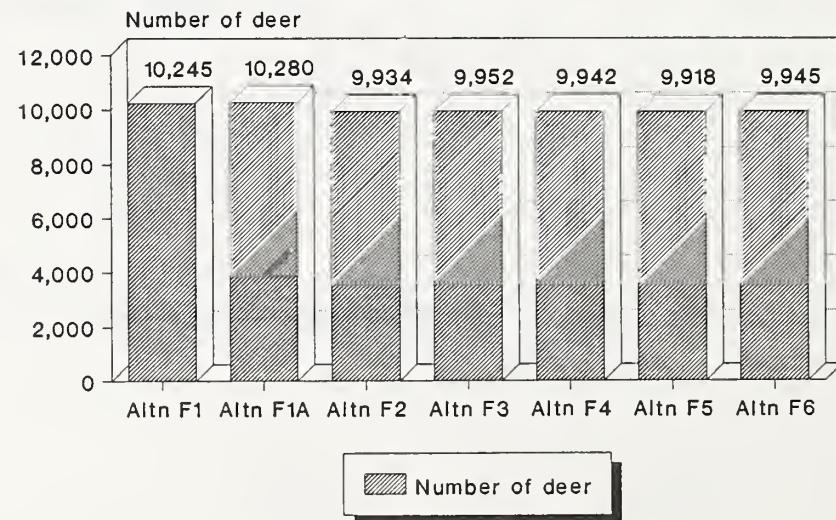
Subsistence hearings and public comment on the Draft EIS identified site-specific areas that are currently heavily used by subsistence households. These areas are different from those identified by the TRUCS but are likely to have considerable overlap. Alternative F6 (which harvests the most high-subsistence use acres as identified by TRUCS) harvests zero acres of these public comment subsistence-use areas, while Alternative F3 proposes the most harvest (3,428 acres), as shown in Figure Sum-7.

Figure Sum-7
Harvest in High-Use Subsistence Areas Identified by Public Response



Deer hunting is one of the most important aspects of subsistence use (in terms of edible pounds consumed) affected by timber harvest. Computer models were used to estimate the effects of timber harvest on deer habitat capability. Based on this analysis, Alternatives 1 and 1a cause no reduction of deer habitat capabilities. Among the action alternatives, Alternative F3 causes the least reduction to deer habitat capabilities (-293), while Alternative F5 reduces deer habitat capabilities the most severely (-327). Figure Sum-8 shows the estimated short-term (1996) deer habitat capability for each alternative.

Figure Sum-8
Estimated Deer Habitat Capability in 1996



Issue 3. Impact of timber harvest operations on wildlife habitat

The major effect on wildlife habitats in all action alternatives is the loss of old-growth forest habitat. Impacts to other habitats were greatly reduced by the interdisciplinary design of units prior to alternative formulation. All alternatives result in impacts consistent with the implementation of the TLMP and the TLMP Draft Revision, Alt.P (1991a).

Table Sum-2 shows the potential reduction in wildlife habitat capabilities, as estimated by habitat capability models, for the key Management Indicator Species (MIS) found in the CPOW Project Area. This table displays the 1954 long-term habitat capability and estimated short-term reduction in habitat capability after potential implementation of the alternatives.

Table Sum-2
Potential Reduction in Habitat Capability for MIS in 1996

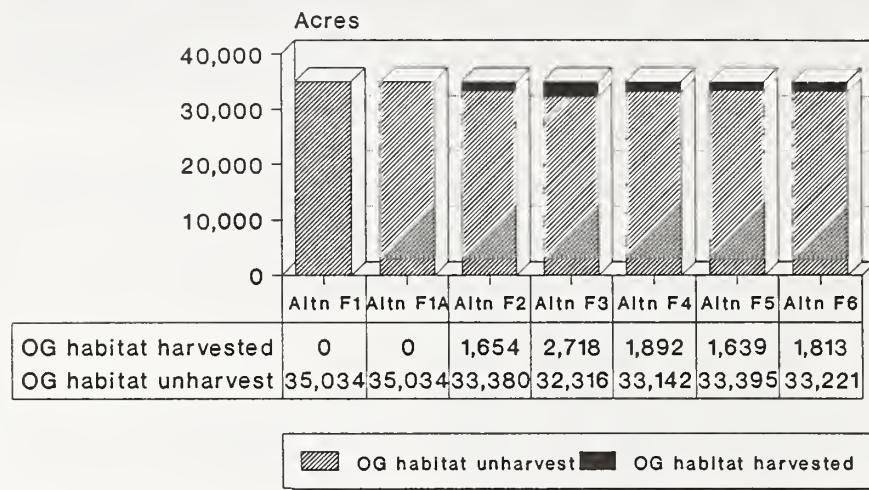
Species	Habitat Capability		Reduction from 1993 by Alternative						
	1954	1993	1	1a	F2	F3	F4	F5	F6
Sitka b-t deer	14,942	10,245	0	+35	311	293	303	327	300
Black bear	552	517	0	0	2	2	2	2	2
Otter	192	168	0	0	0	0	0	0	0
Marten	671	499	0	+ 4	20	23	20	21	19
Hairy woodpecker	7,725	3,395	0	+30	214	213	209	223	203
Brown creeper	17,725	5,594	0	+79	322	310	315	324	275
Van. Can. goose	902	667	0	+ 3	27	30	27	30	28
Bald eagle	518	336	0	0	1	0	1	1	1
Gray wolf	33	25	0	0	1	1	1	1	1

The 1989-94 LTS EIS established areas that, for the duration of that project period, were to be managed to provide old-growth habitat conditions. These areas were commonly termed "old-growth retention" and were in compliance with the 1986 amendment to TLMP. Within the CPOW Project Area, 1989-94 LTS EIS designated 35,034 acres to be managed to provide old-growth habitat conditions. The TLMP Draft Revision proposes areas which provide old-growth habitat (beach fringe, primitive recreation, and estuarine fringe), which, along with TTRA stream buffers and legislated wilderness areas, are sufficient to meet old-growth habitat requirements as identified in the existing TLMP. Consequently, the old-growth habitat areas designated by the 1989-94 LTS EIS are being reconsidered for harvest by this project.

Figure Sum-9 shows the relationship of the proposed harvest of old-growth habitat to the amount established for the 1989-94 planning period. Alternative F5 proposes the least harvest (1,639 acres), while Alternative F3 proposes the most harvest (2,718 acres). In all cases the amount of old-growth habitat proposed for harvest is less than nine percent of the total 1989-94 old-growth habitat within the Project Area.

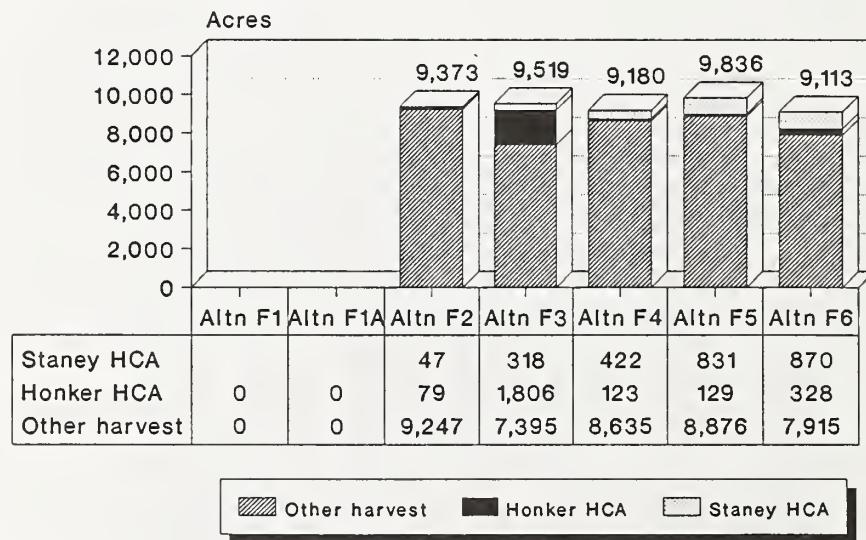
Summary

Figure Sum-9
1989-94 EIS Old-Growth Harvested Compared to Total 89-94 Old-Growth



The Interagency Viable Population (VPOP) Committee identified two large blocks of old-growth forest in the Project Area, which they recommended as Habitat Conservation Areas (HCA's). The larger of these HCA's is in Honker Divide and totals 90,000 acres (34,000 acres of which are within the Project Area), while the Staney Creek HCA totals 23,000 acres. Figure Sum-10 shows the amount of harvest within each HCA by alternative.

Figure Sum-10
Timber harvest in HCA's



Summary

Forest fragmentation represents a change in the overall forest landscape from large, contiguous blocks of old-growth forest to smaller blocks separated by timber harvest units. Increased amounts of forest fragmentation indicate reduced habitat potential for species which are thought to be dependent on interior old-growth forest habitat. One way to analyze forest fragmentation is to measure the reduction of large, contiguous blocks of old-growth forest (defined for the purposes of this analysis as those composed of volume class 4 or higher and over 10,000 acres in size) as a result of timber harvest. Before timber harvest started within the Project Area there were approximately 196,321 acres of old-growth forest which met these definitions. The existing condition is displayed in Alternatives 1 and 1a, which shows there remains 74,061 acres of old-growth forest habitat greater than volume class 4 in blocks over 10,000 acres in size. Table Sum-3 shows the remaining old-growth forest blocks after the proposed timber harvests of each alternative.

Table Sum-3
Effect of Timber Harvest on Forest Fragmentation, in Acres

Alternative	Acres of large, unfragmented blocks >10,000 acres
1	74,061
1a	74,061
F2	70,217
F3	69,365
F4	70,148
F5	70,620
F6	69,726

One way to analyze forest fragmentation is to measure the reduction of large, contiguous blocks of old-growth forest.

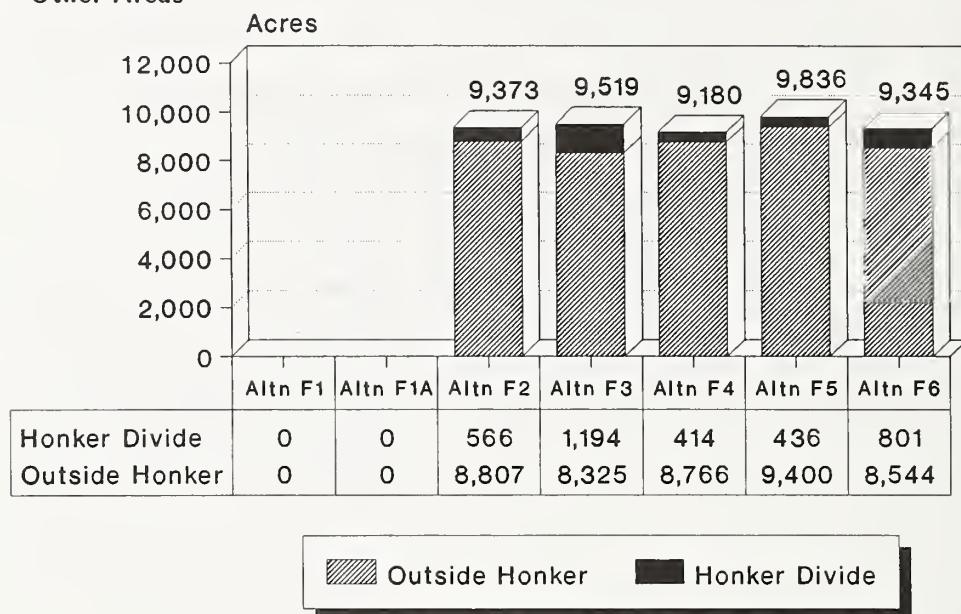


Summary

Issue 4. Impact of timber harvest operations on Honker Divide

Honker Divide has several commonly accepted definitions. The most expansive definition includes all lands drained by the Thorne River and Hatchery Creek watersheds from Barnes Lake to Thorne Bay. Based on this definition, Honker Divide has approximately 86,651 acres, of which 38,350 acres are within the CPOW Project Area. Figure Sum-11 shows the acres within this definition of Honker Divide that are proposed for harvest by the various alternatives. Alternative F4 proposes the least timber harvest within Honker Divide (414 acres), while Alternative F3 proposes the most harvest (1,194 acres).

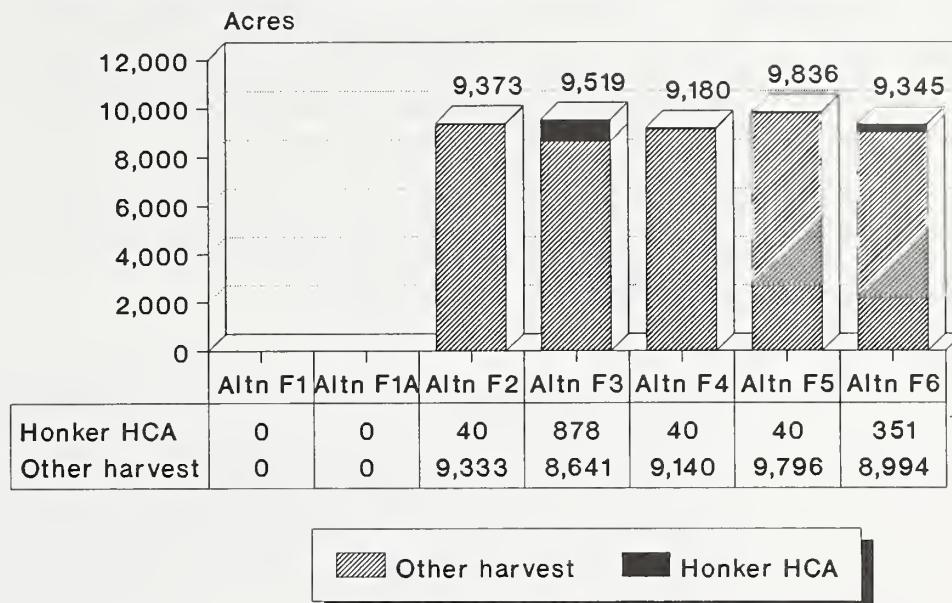
Figure Sum-11
Timber Harvest in Honker Divide, Using Ridge-to-Ridge Boundary, Compared to Other Areas



Another definition of the Honker Divide area is the proposed Scenic/Recreation River corridor in the Thorne/Hatchery system that is currently under consideration by the TLMP Draft Revision. There are approximately 24,357 acres within the proposed corridor, of which 11,276 acres are within the CPOW Project Area. The CPOW project has deferred harvest within this area.

A third definition of Honker Divide focuses on the large Habitat Conservation Area identified by the Interagency Viable Population Committee. This large, unfragmented block of old-growth forest totals approximately 90,000 acres, of which 34,000 acres lie within the CPOW Project Area. (The remainder lies within the Control Lake Project Area.) Figure Sum-12 shows the acres of harvest within the Honker Divide HCA proposed by each of the alternatives. Alternatives F2, F4, and F5 propose the least amount of harvest (40 acres), while Alternative F3 proposes the most harvest (878 acres).

Figure Sum-12
Timber Harvest Honker Divide HCA (Identified by VPOP Committee)



Issue 5. Impact of Timber Harvest Operations on Fish Habitat and Water Quality

While there is potential for diminished water quality and fisheries production, current analysis shows there is no measureable effect on water quality or fisheries production from timber harvest or associated activities proposed by any of the action alternatives. All alternatives equally apply Best Management Practices (BMP) and TTRA requirements for protection of stream courses and adjacent AMHU prescription areas.

Fish habitat capability models are used to estimate the effects of timber harvest on the capability of streams to provide habitat for selected species of salmon and trout. Because there are many factors which influence fish populations—including commercial/sport harvest, oceanic conditions, and predation—these computer models provide only relative measures of habitat capability. These models indicate that there is no change in habitat capabilities for coho and pink salmon or for Dolly Varden char among the alternatives, including the no-action alternatives.

The standards and guidelines associated with the TLMP Draft Revision Alt P limit the amount of timber harvest within a given watershed to 35 percent of the total land base within a 15-year period. All CPOW alternatives meet this guideline for all third order and greater watersheds within the Project Area.

TLMP Draft Revision Alt P standards and guidelines also limit the amount of harvest within high gradient, self-contained process groups to 25 percent or less every 20 years. All CPOW alternatives meet this guideline for all third order or greater watersheds, with the exception of watersheds B54B and C70A.

One measure of potential impacts of timber harvest on fish habitat is the associated new road construction and road reconstruction which crosses streamcourses. During

Summary

placement of culverts or bridges, sediment may be introduced into the streams which may have a short-term effect on water quality. This is shown in Table Sum-4.

Table Sum-4
Road Construction and Reconstruction Crossing Streams

# of crossings	Alternative					
	1	1a	F2	F3	F4	F5
0	0	144	151	118	131	151

Following timber harvest, there is an increased risk of landslides until second growth and the brush layer become firmly established. One way of analyzing this risk is to determine the amount of timber harvest on slopes which have high mass movement index (MMI) soils. Harvest of these slopes has a relatively small influence on introduction of sedimentation into fish-bearing streams, but does provide a measure of comparison among the alternatives. Table Sum-5 shows the proposed harvest on high MMI soils by alternative.

Table Sum-5
Acres of High MMI Soils Harvested

High MMI soils harvested	Alternative					
	1	1a	F2	F3	F4	F5
0	0	3,548	3,081	3,352	3,879	3,864

Issue 6. Impact of timber harvest operations on visual quality and recreation

For the purposes of this analysis, 12 viewsheds have been identified as representing the most significant of the viewsheds within the Project Area. Table Sum-6 shows the proposed VQO's for each key priority viewshed. All proposed harvest units for each alternative meet these VQO's.

Table Sum-6
Proposed Viewshed VQO's, by Distance Zone

	Foreground	Middleground	Background
<i>Priority Viewsheds</i>			
W.C. Waterway-Shaheen	M	MM	MM
W.C. Waterway-Staney	M	MM	MM
W.C. Waterway-Kussan	M	MM	*
W.C. Waterway-Sarkar	M	MM	*
W.C. Waterway-Sarheen	PR	M	*
Whale Pass	PR	M	*
Barnes Lake	PR	M	*
Sweetwater Lake	PR	M	*
Hatchery/Canoe Route	R	PR	*
Clarence-Baird Peak	*	M	*
Clarence-Ratz Harbors	*	M	M
Clarence-Sal Creek	*	M	M

MM = Maximum Modification M = Modification PR = Partial Retention R = Retention

* These distance zones do not apply within these viewsheds.

Note: Non-priority viewsheds are inventoried as Sensitivity Level I travel routes, but are not to be managed for retention of scenic values.

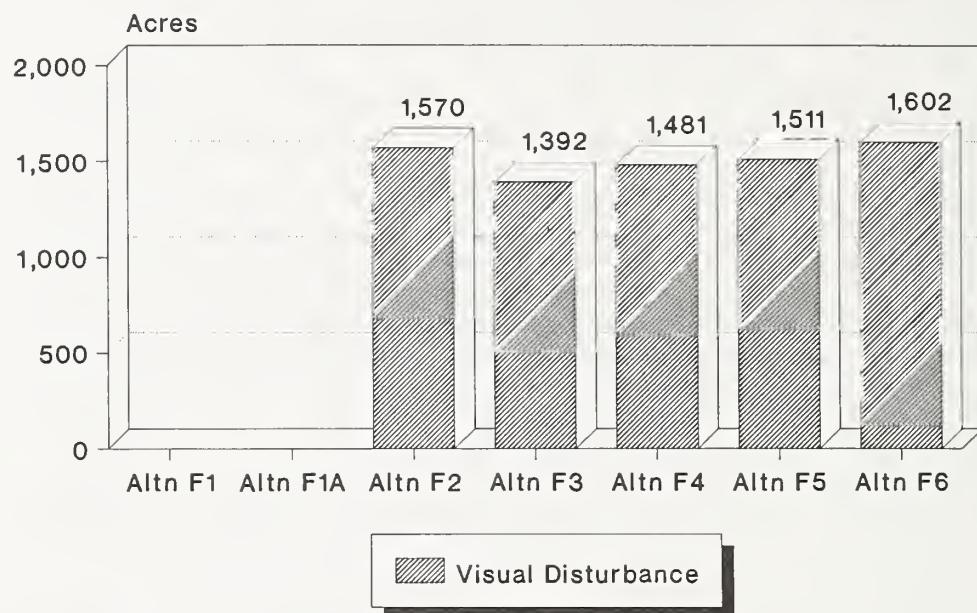
"W.C. Waterway" means saltwater passages along the West Coast of Project Area.



Summary

The 12 identified viewsheds total approximately 64,499 acres. Figure Sum-13 shows the visual disturbance in these viewsheds by each alternative. The cumulative visual disturbance for all the viewsheds together is 22 percent for the no-action alternatives and 24 percent for each action alternative, which is within the range allowable by the standards and guidelines of TLMP Draft Revision Alt P (20–50 percent).

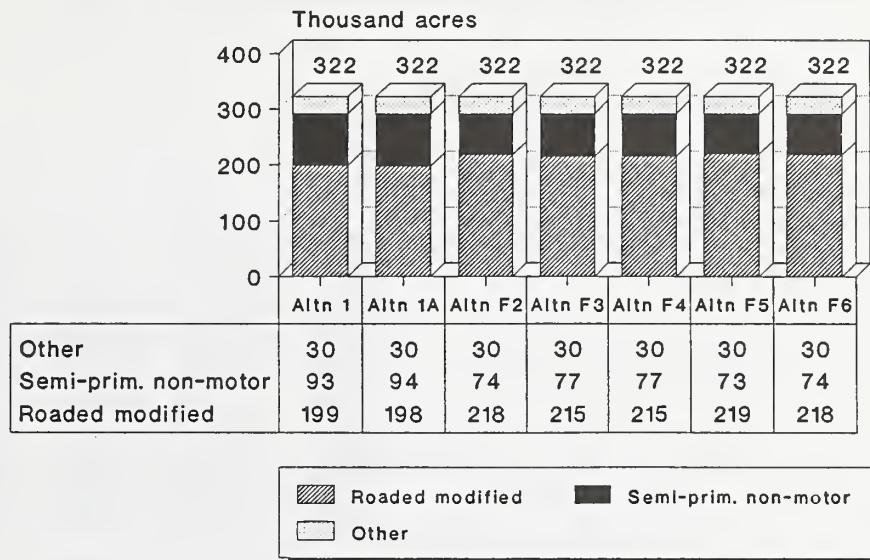
Figure Sum-13
Acres of Viewshed Disturbance Within Key Viewsheds, by Alternative



The coastal hill landscape typical of part of the Project Area provides attractive scenic viewsheds.

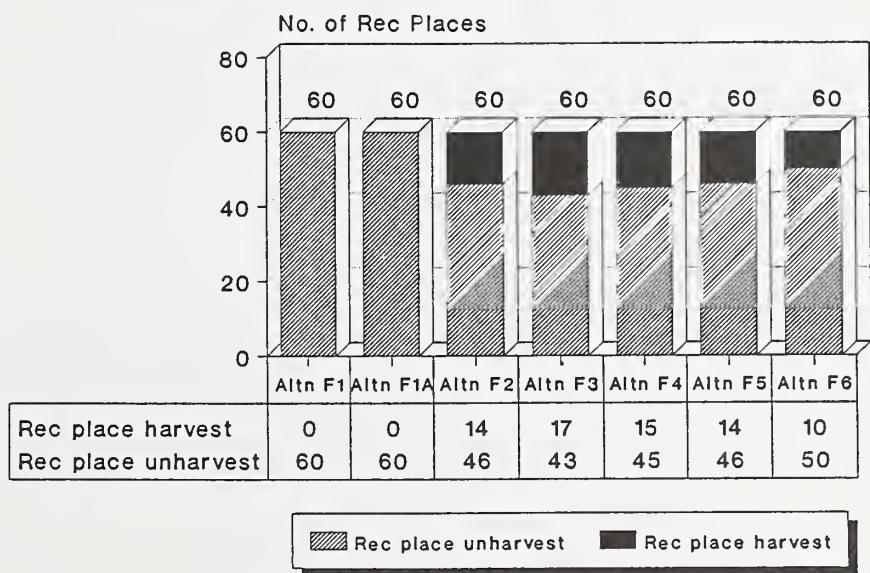
Implementing any of the action alternatives would change the existing Recreation Opportunity Spectrum (ROS) class from semi-primitive nonmotorized (SPNM) to roaded modified (RM). Figure Sum-14 shows the change in ROS class by alternative.

Figure Sum-14
Changes in ROS Class, by Alternative



There are 60 inventoried recreation places within the Project Area. Of these, 10-17 would be affected by harvest activities proposed by any of the action alternatives. Figure Sum-15 shows the number of recreation places that would be affected by proposed harvest by alternative.

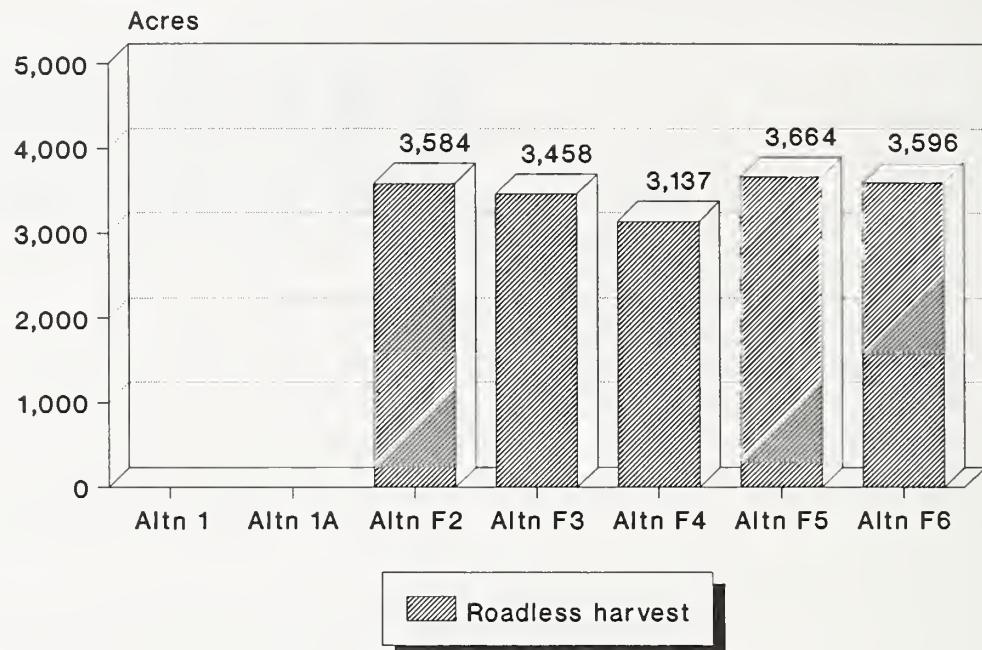
Figure Sum-15
Harvest within Recreation Places



Summary

The TLMP Draft Revision identified several roadless areas which lie within or partially within the Project Area. Of these, five have some timber entry proposed by the alternatives. Figure Sum-16 shows the number of roadless area acres proposed for harvest by alternative.

Figure Sum-16
Timber Harvest within Roadless Areas

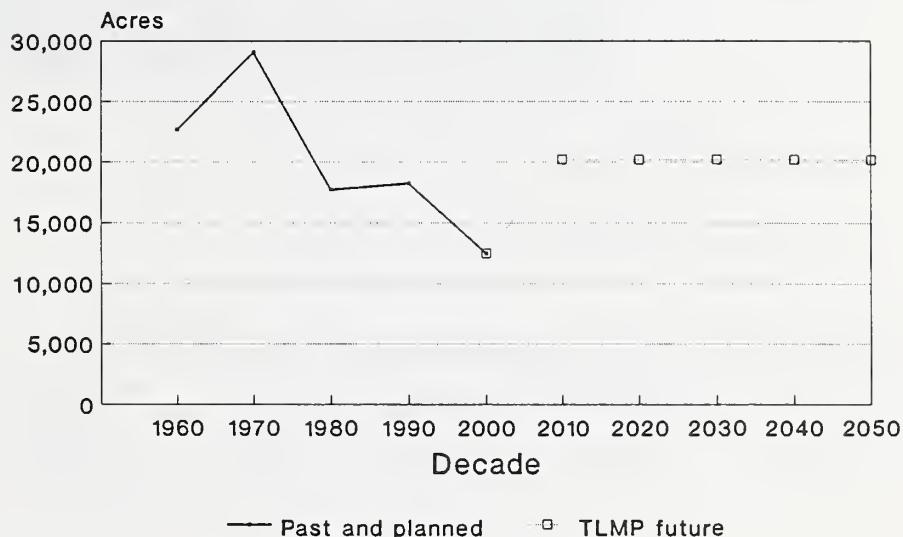


Issue 7. Long-term stability of local communities

There are four communities within the Project Area: Thorne Bay, Coffman Cove, Whale Pass, and Little Naukati. The economic structure of these communities is highly dependent on the harvest of National Forest system timber. Timber jobs are estimated by 1 MMBF producing 8.67 person-years of employment. Because all action alternatives propose very close to the same level of timber harvest, all alternatives would provide similar employment—the equivalent of approximately 570 jobs annually for the period 1993–1996.

Harvest levels for the Project Area have fluctuated since 1962. Figure Sum-17 shows historic harvest levels by decade, proposed harvest levels through the end of the long-term contract, and future harvest levels which can be maintained on an even-flow basis through the end of the first rotation, according to the timber supply analysis in the TLMP Draft Revision, Alt P. There are numerous factors which may modify this even-flow level of harvest, including: reduced use of clearcutting, unharvestable acres due to resource concerns, timber economics, and new environmental regulations. The distribution of the Ketchikan Area's timber harvest over the next 50 years is shown in Appendix A of this EIS, and is based on the timber sale schedule of the TLMP Draft Revision Alt. P.

Figure Sum-17
Average Decadal Harvest Levels for the CPOW Project Area



Following completion of the Long-Term Contract in 2004, according to the TLMP Draft Revision Alt P, there will be sufficient volume remaining in the Project Area to sustain employment at current or historic levels. This indicates local, timber-dependent communities and logging camps within the Project Area can depend on a steady, sustainable timber supply through the end of the first rotation.

Summary

The State of Alaska receives 25 percent of the sum of all net receipts from timber sold on National Forest land plus any purchaser road credits. This money is earmarked for public school and road maintenance funding and is an important source of revenue for local communities. Table Sum-7 shows the estimated returns to the State of Alaska from sale of timber from the CPOW Project Area, as proposed by the alternatives. Actual returns will be based upon scaled volumes and appraised rates and may be significantly different from this estimate, which is based on estimated mid-market rates.



The economic structure of timber-dependent communities and logging camps such as Thorne Bay is closely linked to National Forest system timber.

Table Sum-7
Estimated Returns to State of Alaska from Sale of CPOW Timber*

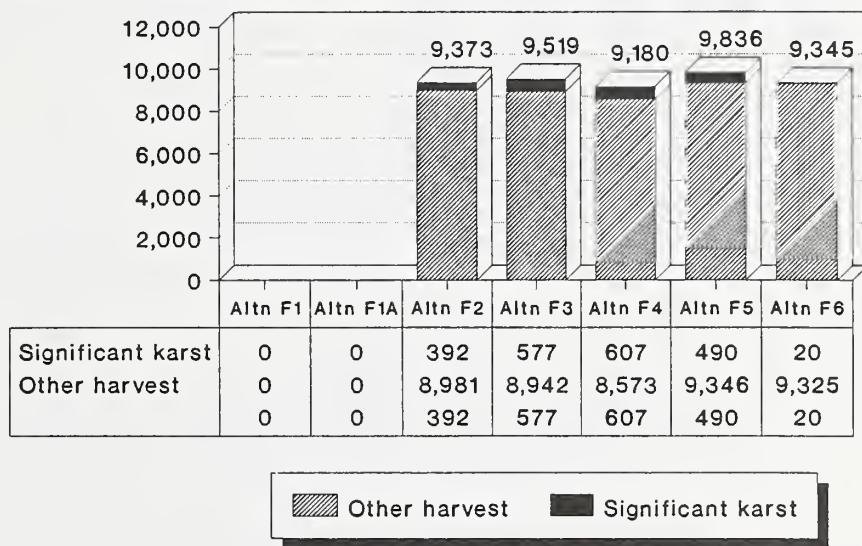
Alternative	Estimated volume (MMBF)	Estimated stumpage (\$/MMBF)	Total receipts (M\$)	Purchaser Road Credits	State of Alaska returns (M\$)
F1	0	0	0	0	0
F1a	0	0	0	0	0
F2	268	3.29	881	18,948	4,957
F3	264	2.41	636	23,330	5,991
F4	261	1.03	296	18,307	4,644
F5	267	3.83	1,022	17,275	4,574
F6	263	0.58	153	17,521	4,418

* Based on mid-market rates.

Issue 8. Impact of timber harvest on significant karst features

Using the GIS geological layer, the areas of known and potential karst development within the Project Area were delineated. Based on this analysis, 167 proposed harvest units were determined to be underlain with karst geology. The Forest Service contracted to have all of these proposed harvest units surveyed for significant karst features. Based on the results of this survey (approximately 20 percent of the proposed units were found to contain significant karst features), some units were redesigned, while others were deferred from harvest at this time. Figure Sum-18 shows the proposed acres of harvest by each alternative on areas containing (or immediately adjacent to) significant karst features.

Figure Sum-18
Acres of Harvest on Karst Features, by Alternative



Alternative F6, which was developed in response to public comment, proposes the least harvest on areas with significant karst features (20 acres), while alternative F4 proposes the most harvest (607 acres). Mitigation measures to protect the significant karst features will be applied to all these areas, as well as to any additional areas which are identified during sale layout or administration.

Summary

Comparison of Alternatives by Environmental Consequences

Environmental consequences for subsistence, timber, wildlife, fisheries, recreation, visuals, community stability, and caves have been summarized in the preceding section. Disclosure of impacts on other resources is summarized below by resource.

Threatened, Endangered, and Sensitive Species

There are no known threatened or endangered species within the CPOW Project Area. Consequently, none of the alternatives will have any effect on such species. The northern goshawk is listed as a category 2 candidate species. Two goshawk habitat management areas have been located within the Project Area—Sarheen and Sarkar Lake (near Salt Water Lagoon). The action alternatives propose harvest within two of these areas, as shown in Table Sum-8.

**Table Sum-8
Harvest within Goshawk Habitat Management Areas, in Acres**

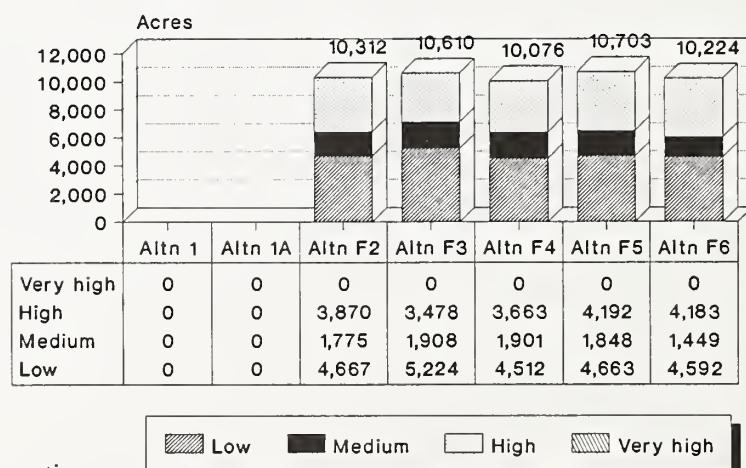
Territory	Alternative						
	1	1a	F2	F3	F4	F5	F6
Sarkar Lake	0	0	83	147	147	147	0
Sarheen	0	0	0	270	199	177	119

Soils

The following is a risk assessment of landslide potential as a result of timber harvest and associated road construction. Complying with TLMP Draft Revision Alt.P standards and guidelines will reduce much of the landslide potential.

Landslides are most likely to occur as a result of timber harvest and associated road construction on landscapes with very high mass movement indices (MMI). There is no proposed CPOW harvest from any areas known to contain very high MMI soils. Landslides typically occur less frequently when these activities occur on areas with high MMI, and, in most cases, are less common on areas with medium or low MMI. Figure Sum-19 shows the number of acres disturbed by timber harvest and road construction by mass movement index.

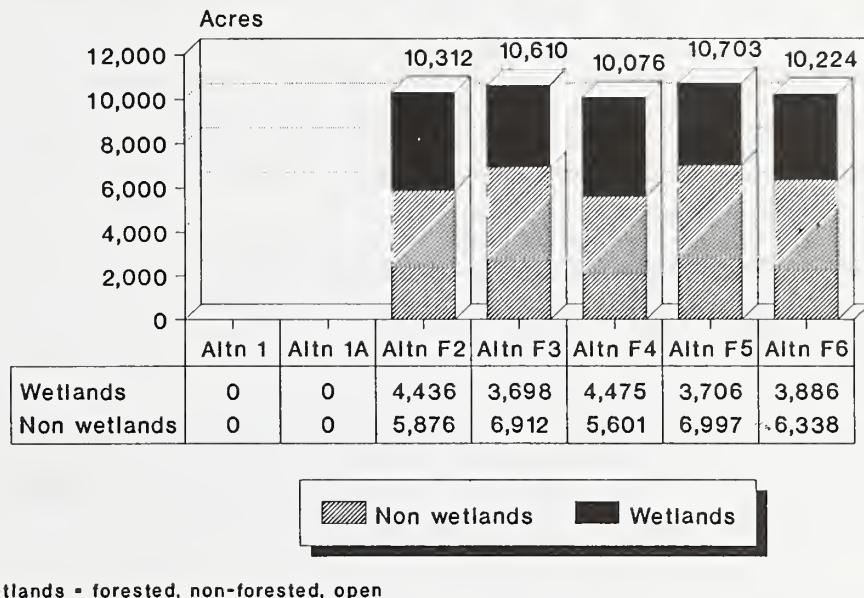
**Figure Sum-19
Acres of Timber Harvest and Road Construction by Mass Movement Index**



Summary

Approximately 50 percent (169,962 acres) of the Project Area is classified as wetlands. Executive Order 11990 requires the Forest Service to minimize the long- and short-term adverse effects associated with the destruction or modification of wetlands. Best Management Practices dictate that road construction in wetlands should be avoided where practicable and that timber harvest within wetlands must be limited to low impact yarding systems. Figure Sum-20 shows the number of acres of wetlands with timber harvest and road construction activities.

Figure Sum-20
Wetlands With Timber Harvest and Road Construction Activities



Cultural Resources

Approximately 100 proposed harvest units were surveyed for cultural resources. There were several significant sites located, all of which were protected through avoidance. Units adjacent to these sites must conform closely to planning unit boundary and road location to maintain the integrity of the cultural resources.

Mitigation Measures

Mitigation measures are site-specific management activities to reduce the adverse impacts of timber harvest and associated amenities. The Tongass National Forest uses unit cards to display appropriate mitigation measures which will be applied on a site-specific basis, as determined by reconnaissance, Forest Plan standards and guidelines, Best Management Practices (BMP's), and other laws and regulations. Unit cards have been developed for each harvest unit and associated road proposed by the various alternatives and appear in Appendix G (Vol. II of this EIS).

Information from the unit cards is summarized here and is categorized by resource. Mitigation measures are discussed in detail in Chapter 2 of the EIS.

Recreation

1. After harvest is complete, close new road construction into units 553-221 and 553-222 to reduce motorized vehicular access to adjacent Sarkar Lakes Management Area. This road closure will protect the integrity of the primitive recreation experience. This closure will be fairly successful in reducing car and truck access, but less effective for other types of vehicles.
2. After harvest is complete, close new roads constructed into units 598-203, 598-205, 598-206, 598-207, and 598-249, in the Paul Young Creek area. This closure will inhibit access to the Karta Wilderness Area and remain in effect until the Wilderness Implementation Schedule (WIS) is completed for that area. It should prove a fairly successful measure for cars and trucks, but be less effective for other vehicles.
3. There are 7 units adjacent to the Sarkar Lakes Management Area. A boundary establishment needs to be completed prior to layout.
4. Recreation staff will assist in the design and location of roads within recreation places.
5. Unit 574-238, proposed for harvest in Alternative F3, lies partially within the 1/2 mile corridor of the Thorne River. According to the Honker Divide Management Plan adopted by TLMP, 1986, only small harvest units or larger patch cuts are permitted within this 1/2 mile corridor (not to be confused with the 1/4 mile Wild and Scenic River corridor). Unit 574-238 will be prescribed for partial cut harvest.
6. Unit 581-204 B, proposed for harvest in Alternatives F2, F3, F4, F5, lies above Eagle Creek at the outlet of Luck Lake. This unit has been redesigned to provide a 300 foot buffer above Eagle Creek and to partial cut the portion of the unit below the road in order to preserve the old-growth appearance of the hiking trail which provides fishing access.

Visuals

1. In order to meet the visual quality objectives proposed by this project, unit 583-233 (Alts. F2, F4, F6) is proposed for partial cut harvest.
2. There are two adjacent units, 582-214 and 582-215 which are proposed for harvest by Alternatives F2, F3, F5, and F6. Since these two units will create a contiguous opening exceeding 100 acres, a 300- to 500-foot leave strip will be provided to keep the created opening under 100 acres. The design of this leave strip will require coordination with a landscape architect during harvest unit layout, in order to meet the VQO proposed by this project.

Fish, Water Quality, and Soils

Best Management Practices. Best Management Practices ("BMP's) are methods, measures or practices to prevent or reduce water pollution. Their use is required by the TTRA and the Clean Water Act. They include structural and nonstructural controls, operation and maintenance procedures, and scheduling and distribution of activities. Usually, BMP's are applied as a combination of practices, rather than a single practice.

The effectiveness of BMP's is primarily determined by the degree to which instream water quality meets state water quality standards. Although numerical standards are included in the Alaska state water quality regulations, measurements are difficult to routinely apply to the regulation of nonpoint sediment sources on road construction and timber sale sites. The Environmental Protection Agency has determined that the reasonable implementation, application, and monitoring of BMP's achieves compliance with the intent of the Clean Water Act. Water quality studies conducted in Southeast Alaska indicate that except for short-term localized deviations from numerical standards, "BMP's are effective in maintaining sediment concentrations within state standards" (Paustian 1987).

In addition to adhering to required BMP's, mitigation measures for fish, water quality and soils will include: fish passage provisions on stream crossings; split yarding where possible; full bench construction and end haul of waste in areas with very high potential for mass movement; partial log suspension on all slopes with high mass movement potential (ground disturbance <10 percent); and construction of LTF work surfaces to back drain water toward filter strips or collection/settling basins. For details, see Appendix G, Unit Cards, and Chapter 2 of the EIS.

There are 14 units with characteristics that may contribute to the sensitivity of nearby streams. To mitigate this possible effect, all deciduous trees, understory vegetation, and conifers of less than 12 inches DBH will remain standing with 35 feet slope distance of all Class III streams in these units.

Summary

Wildlife and Threatened & Endangered Species

1. To provide microdiversity within harvested areas, leave windfirm, no-cut timber islands within proposed harvest units greater than 100 acres in size. These islands will vary in size from 1 to 5 acres, with the goal being to have 1 acre of no-cut, windfirm island per 20 acres harvested. The location of these islands will be determined during layout or sale administration, and will be designed in such a fashion as to not impose undue safety hazards on logging contractors. Other units or clusters of units which were originally greater than 150 acres in size or else combine with an adjacent previously created opening to form a contiguous opening greater than 100 acres, will incorporate 300- to 500-foot leave strips to reduce opening size to less than 100 acres (see the Timber portion of the mitigation measures below).
2. Provide for habitat requirements of cavity and snag dependent Management Indicator Species (MIS) by leaving 275 snags per 100 acres averaged over each VCU. To provide for adequate distribution of snags within VCU's which have marginal numbers of snags, some units will have small 0.1-acre (or larger) snag patches distributed throughout the unit at a rate of 0.1 acre per 10 acres of unit. The location of these snag patches will be determined during layout or sale administration, and will be designed in such a fashion as to not impose undue safety hazards on logging contractors. For guidelines for placement of snag patches and old-growth islands, see Chapter 2 of the EIS.
3. Region 10 goshawk management guidelines in effect at the time of unit release will be followed. The interim guidelines issued August 18, 1992, call for no harvest within the immediate timber stand (20–30 acres) containing an identified nest tree, limited harvest (five percent per decade) within the adjacent 600 acres (post-fledging area), and mapping out approximately 6,000 acres for the foraging area. All known goshawk nests and any new nests discovered during field recon or unit layout will be protected from timber harvest and blowdown by a minimum 660-foot buffer around the nest tree.
4. Due to the limited information available on nesting habitat requirements of marbled murrelets, any nests located during field recon or unit layout will be assessed on a case-by-case basis.
5. To protect wildlife habitat or populations from vehicular access, the Access Management Plan, Option B of the 1989-94 LTS EIS, will be implemented. Basically, this plan calls for the closure (by gate, vegetative closure or some type of earth or rock barrier) of all dead-end Local roads or other roads which provide access to important wildlife habitat areas (see Chapter 3-Transportation of the EIS). The Record of Decision may make changes to the Access Management Plan based on (1) newly identified wildlife habitat management areas, or (2) areas to which the Forest Service must maintain temporary access for silvicultural treatments.
6. Road construction and harvest activities for unit 583-258 will be limited to the time period outside the wolf mating and denning season (normally January 1 through June 30). In addition, the access road to this unit will be closed following completion of post harvest activities.
7. Timber harvest units that are within a half mile of Barnes and Sweetwater lakes and Gold and Galligan Lagoon will have harvest and road construction activities

limited to the time period when trumpeter swans are not present (normally from April 1 to October 31).

8. Road construction activities that are within a half mile of bald eagle nests will usually have blasting restricted to the period of September 1 to February 28. If the nest is unoccupied, normal blasting procedures are also permitted from June 1 to August 31 if there is no direct danger to eagles, nests, eagle nest trees, or other eagle habitat elements. Other restrictions may apply.
9. Forest-wide standards and guidelines for application on all Forest Service permitted or approved activities have been incorporated by reference into the CPOW Final EIS from the TLMP Draft Revision, including those which provide for the protection and maintenance of whale habitats. For details see Chapter 2 of the EIS.
10. Forest-wide standards and guidelines to prevent and/or reduce potential harassment of sea lions and other marine mammals due to activities carried out by or under the jurisdiction of the Forest Service, have been incorporated by reference into the CPOW Final EIS from the TLMP Draft Revision, including those which provide for the protection and maintenance of harbor seal, Steller sea lion, and sea otter habitats. For details see Chapter 2 of the EIS.

Timber

1. It is desirable to maintain the cedar component in stands where it naturally occurs. Because cedar tends to regenerate poorly following clearcut harvest in some stands, it is desirable to not harvest the mature cedar but to retain that vegetative structure for biodiversity and to establish cedar regeneration. Silvicultural methods such as seed tree or shelterwood are appropriate to meet specific resource objectives. Areas identified to be best suited for cedar regeneration include units within the cedar or mixed conifer plant association that are proposed for helicopter yarding and having either elevations over 1,200 feet (on north and east aspects) or over 1,500 feet (on south and west aspects).
2. There are several units where site specific silvicultural prescriptions have identified the need to utilize a seed tree harvest to help regenerate the stand.
3. Based on preliminary recon there are some units which, because of their elevation, aspect, or indigenous plant association, may have problems establishing adequate natural regeneration. Supplemental hand planting will be done as necessary.
4. The TLMP Draft Revision Alt P has identified a stream and lake land use designation, which prescribes an extended buffer beyond the TTRA buffer for the purpose of preserving riparian habitat. This extended buffer permits timber harvest using uneven-aged management. The MELP analyzed the proposed harvest units which included areas within this stream and lake land use designation. The following units contain riparian areas to be harvested using uneven-aged silvicultural techniques such as group selection.
5. There are numerous units or clusters of units which create contiguous openings in excess of 100 acres. These units will incorporate wildlife islands or 300- to 500-foot leave strips so that no opening exceeds 100 acres. These leave strips will be designed to achieve reasonably windfirm edges, while maintaining logging feasibility. These leave strips will play an important role in ecosystem

Summary

management by providing wildlife corridors, snag recruitment, legacy trees, refugia for vascular plants, and visual diversity.

Cultural Resources

During the summer of 1992, the proposed harvest units were surveyed for existence of cultural resources. Several units were found to contain significant cultural resources to the extent that the most appropriate mitigation measure available was avoidance of harvest. The locations of these units will not be disclosed to preserve the integrity of the sites.

In addition, 13 units were found to either contain or be adjacent to significant cultural resources. Where necessary, boundaries were redesigned to avoid the cultural material. Timber harvest and road location in these 13 units must conform very closely to the planned location. Any deviation must be coordinated with cultural resource personnel.

Contracts may be modified by the Forest Service to protect cultural resources which may be discovered during the course of the Purchaser's operations. The KPC Long-Term Contract states that "in the event that any cultural resource is identified, both parties shall be notified immediately. The Purchaser shall protect all cultural resources against destruction, obliteration, removal, or damage during the operating period. "

Karst and Cave Resources

The standards and guidelines for cave resource management proposed for the TLMP Draft Revision (1991a) have been formulated from field observations. Though the Federal Cave Resources Protection Act charges the Forest Service with protection only of significant caves, the Tongass National Forest is working to protect all significant karst resources. Until resource values are determined, the Ketchikan Area is considering all caves to be significant.

During the summer of 1992, the proposed harvest units were surveyed for existence of significant karst features. Several units were found to contain significant karst resources to the extent that the most appropriate mitigation measure available was avoidance of harvest. The locations of these units will not be disclosed to preserve the integrity of the sites.

In addition, 18 units were found to either contain or be adjacent to significant karst resources. Where necessary, boundaries, logging systems, and road locations were redesigned to avoid these resources. Timber harvest and road location in these 18 units must conform very closely to the planned location. Any deviation must be coordinated with District or Area Cave Resource Specialists.

Specific Mitigation Efforts for Caves will include: suspension of work that might damage newly found sites; design of harvest and road activities to protect cave resources; design of surface management activities to maintain surface and groundwater flows to caves and significant karst features; retention of vegetation near caves and significant karst features; maintenance of buffers around all direct drainages into significant karst features; directional falling of trees away from caves and their courses; prevention of use of caves as disposal sites; design of road and construction activities (including blasting) to protect cave formations from damage; seasonal closures to construction activities as necessary; and protection of caves against vandalism and excessive public use.

Monitoring

Monitoring is designed to determine if the resource management objectives of the CPOW Final EIS have been met. The results will be used to verify implementation and effectiveness of selected mitigation and protection measures in a timely manner. Three types of monitoring were recognized in the development of the CPOW Monitoring Plan: Implementation, Effectiveness, and Validation. For details of each type of monitoring proposed for the CPOW Project Area—which includes a discussion of objectives, desired results, measurement, evaluation, responsible staff, record of results, annual cost, and FTE needs—see Chapter 2 of the CPOW Final EIS.

Implementation Monitoring

Implementation monitoring assesses whether the project was implemented as designed and whether it complies with the Tongass Land Management Plan (TLMP). Unit Cards (Appendix G) will provide the basis for determining whether recommendations were implemented for various aspects of timber harvest. Implementation monitoring is part of the administration of a timber sale contract. The sale administrators and road inspectors assure that the prescriptions contained on the unit cards are implemented.

Best Management Practices

Implementation monitoring of soil and water resources will largely consist of monitoring Best Management Practices (BMP's) and Aquatic Habitat Management Unit (AHMU) prescriptions. BMP's, as defined in the Region 10 Soil and Water Conservation Handbook (FSH 2509.22) are procedures designed to ensure protection of soil and water resources. BMP's to be monitored at a specific site are determined through a review of unit/road cards, fish habitat reports, and other appropriate documentation.

Preharvest Issues of Concern

Preharvest issues of concern include land-disturbing activities on high MMI soils (BMP's 13.2, 13.5, and 13.16); road and landing locations (BMP's 13.10, 14.3, 14.6, through 14.10, and others); and channel stability and streamside management, including stream temperature sensitivity (BMP's 12.6, 12.7, 13.9, and 13.16). BMP's are prescribed for most all units or road segments. Review unit cards for all alternatives (Appendix G) to see how BMP's are prescribed.

Effectiveness Monitoring

Effectiveness monitoring seeks answers about the effectiveness of design features or mitigation measures in protecting natural resources and their beneficial uses. Monitoring records will be kept by the responsible staff.

Validation Monitoring

Validation monitoring is conducted to show if the assumptions or models used in planning are correct. It is usually carried out at the regional level in conjunction with research. Validation monitoring may or may not occur within the CPOW Project Area since this type of monitoring is built into a Forestwide Action Plan.

INDEX

access, S-5.
alternatives considered, S-8.
bald eagle, S-4, S-19.
beach fringe, S-19.
bear, S-19.
black bear, S-4.
BMP, S-23, S-34-35.
brown creeper, S-19.
cave, S-4.
clearcut, S-9.
coho salmon, S-23.
comparison of alternatives, S-15.
Contract obligations, S-2.
cost effectiveness, S-5, S-15.
cultural resource, S-9.
cultural resources, S-33.
deer, S-17-19.
Desired future condition, S-2, S-4-5.
Dolly Varden, S-23.
endangered, S-32.
fish, S-5, S-23-24, S-32.
fragmentation, S-10-12, S-21.
goshawk, S-10-13.
habitat capability, S-18-19, S-23.
hairy woodpecker, S-19.
honker divide, S-5, S-10-13, S-22-23.
KPC, S-38.
logging system, S-15.
LTF, S-5, S-9.
marten, S-4, S-19.
MIS, S-19.
MMI, S-24, S-32.
MMI Soil, S-24.
new road construction, S-5, S-7, S-11-12, S-16, S-23.
old-growth, S-4-5, S-9-12, S-19-20, S-22.
old-growth, S-10.
otter, S-19.
partial cut, S-9.
pink salmon, S-23.
Planning record, S-6.
preferred alternative, S-13.
Proposed Action, S-5.
recreation, S-4-5, S-19, S-22, S-25, S-27, S-32.
recreation river, S-22.
riparian, S-5, S-8.
road construction, S-16-17, S-24, S-32.
road reconstruction, S-23-24.
roadless areas, S-28.
Sarkar, S-32.
scenic river, S-22.
scenic/recreation river, S-22.
sediment, S-23-24.
significant issue, S-15.
Sitka black-tailed deer, S-4.
stumpage, S-15-16.
subsistence, S-2, S-4-5, S-17-18, S-32.
summary comparison, S-13.
threatened, S-32.
timber economics, S-15-16.
TLMP, S-38.
TTRA, S-2, S-9, S-11-12, S-19, S-23, S-35.
Vancouver Canada goose, S-19.
viable population, S-8.
viewshed, S-25.
visual quality, S-5, S-9, S-25.
volume class, S-1, S-21.
VQO, S-9, S-25.
water quality, S-5, S-23.
watershed, S-1-2, S-22.
wetlands, S-33.
wilderness, S-19.



1022387149

Acronyms

AHMU - Aquatic Habitat Management Unit
ANILCA - Alaska National Interest Lands Conservation Act
BMP - Best Management Practice
CPOW - Central Prince of Wales
EIS - Environmental Impact Statement
IDT - Interdisciplinary Team
KPC - Ketchikan Pulp Company
LTF - Log Transfer Facility
LTS EIS - Long-Term Sale (Ketchikan Pulp Co.) 1989-94 EIS.
MMBF - a million board feet
MMI - Mass Movement Index
NEPA - National Environmental Policy Act
NFMA - National Forest Management Act
ROD - Record of Decision
TLMP - Tongass Land Management Plan
TRUCS - Tongass Resource Use Cooperative Survey
TTRA - Tongass Timber Reform Act
USDA - United States Department of Agriculture
VCU - Value Comparison Unit
WAA - Wildlife Analysis Area

* NATIONAL AGRICULTURAL LIBRARY



1022387149



RECYCLED PAPER